Aerts *et al.* Reply: In response to the Comment by Ryff [1], we underline that the model presented in [2] is not intended to provide a complete physical description of all possible phenomena that can be observed with the type of source which is used in the Franson experiment [3]; it is merely provided to show that the original formulation of the experiment cannot be used to exhibit a violation of local realism. The existence of such a local hidden-variable model removes any possibility of a violation, unless ultrafast changes are used as is shown in the latter part of our paper.

It is important to stress that in the original proposal [3] it was assumed that it is enough to allow the local observers to choose between (two) pairs of appropriate phase settings in the local interferometers to reveal violations of local realism (exactly in parallel with two pairs of local polarizer orientations in the standard polarization tests of local realism). The relation of the local interferometer size to the rate of phase shift changes was not mentioned; it was (tacitly) assumed that the situation is equivalent to the one for polarization tests, i.e., that the changes of the phase shifts should be made in the usual delayed-choice way for the Bell-type experiments (that their time scale is determined by the time it takes the light to travel the distance between the source and the local interferometer). Our simple model points out that this is not the case.

However, for the kind of changes outlined by Ryff, we draw attention to the endnote in Ref. [12] in our Letter [2]:

"In case the interferometer is dismantled, the detection is always $+1_{\mathrm{E}}$. If one path is blocked, the events are randomly chosen from $+1$ or -1 each with probability $1/4$ (early or late as appropriate), or 'no detection' with probability $1/2$. A modification of this type may be made as long as the assumption in [11] (in [2]; no ultrafast changes) is valid."

Here some modifications of the experimental setup are discussed that remove the interference. The expression "of this type" is meant to include any local change of the measurement setup at either detector site that removes the interference; there was not enough space to fully contain this in [2]. It is a simple matter to modify the local realistic detector patterns to remove the interference, as indicated above (whereas it is rather more difficult to *establish* interference in a local-variable model for the original setting).

If the changes in the local phase shifts ϕ and ψ are ultrafast, it is shown in [2] that there cannot be a local hidden-variable model, and to show this, no other modifications of the measurement setup were needed. The result was obtained using only a measurement setup of the same type as in the original Franson proposal, and, thus, for ultrafast changes there is no need to take into account changes in the interferometer of the type discussed in our endnote [12] including the one used by Ryff. These operational situations, different from the one studied by Franson, can be used to show that *particular* local hidden variable models (like ours), have a limited range of applicability, but whether they can be used to disprove in general the existence of such models (via a violation of some Bell inequality) remains an open question.

In short, our Letter [2] is intended to discuss *the original Franson proposal,* pointing out that there is a local-variable model of the original experiment, and showing that with ultrafast changes of the local phase shifts there cannot in general be a local-variable model of the experiment.

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